Consonant harmony in Igbo

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In this paper I first present some facts of Igbo phonology which have received little attention or have remained unnoticed in the past, and go on to consider whether these facts can be considered as an instance of consonant harmony (CH), or whether they can be derived from vowel harmony (VH). In either case, parts of phonological theory will need to be revised to accommodate the Igbo facts.

The consonant inventory of what has been called "Central Igbo" is given in (1). Tense consonants (transcribed in upper case) are realised with aspiration or breathy voice.

(1)

lax:											*tense:*					
	p	b	f	v		ɓ̥	ɓ		m	w		P	B	F	V	
	p^j	b^j										P^j	B^j			
	t	d	s	z	r			l	n			T	D	S	Z	R
	t^j	d^j	s^j	z^j	r^j				n^j			T^j	D^j	S^j	Z^j	R^j
										j						
	k	g					ɣ		ŋ			K	G			
	k^w	g^w					$ɣ^w$		$ŋ^w$			K^w	G^w			
			h											H		
			h^j											H^j		
			h^w											H^w		

For each of the 8 oral vowels of Central Igbo (CI) – a 4+4 ATR system – there exists a nasal counterpart. The nasal vowels occur only after one of the tense consonants and never after a lax one. Oral vowels, on the other hand, are in complementary distribution: they occur only after unspirated/lax consonants. Moreover, tense and lax consonants cannot be mixed within a simplex word. So, in effect, we have "lax" words (containing only oral vowels and lax consonants) and "tense" words (containing, optionally but usually, an oral first vowel, followed only by tense consonants and nasal vowels). Two almost-minimal pairs are given in (2).

(2) Harmony examples: ɛ̀bɛ́rɛ̀ 'mercy' ɛ̀Bɛ́Rɛ́ [ɛ̀b^{h}ɛ̃́r^{h}ɛ̃́] 'slice'
ɔ̀kɪ̀rɪ̀ 'castrated male sheep' ɔ̀Kɪ́Rɪ́ [ɔ̀k^{h}ɪ̃́r^{h}ɪ̃́] 'potato-like root'

The fact that a word-initial vowel is always oral seems to indicate that there is no lexical contrast between oral and nasal vowels. In this case, we must assume that CI has lexically distinctive tense consonants, CH, and a process whereby a vowel following a tense consonant is nasalised. The problems with this analysis are:

- Outside of CI, CH affects only coronal consonants; in CI, "tenseness harmony" would have to affect all consonants except the set /ɓ̥,ɓ,ɣ,$ɣ^w$,l,m,n,n^j,ŋ,$ŋ^w$,w,j/.
- Vowel nasalisation would be triggered by tense consonants – none of which are nasal.
- Nasal consonants (which are all lax) would never trigger vowel nasalisation.

If we temporarily leave aside the word-initial vowels, it could be argued that CI has lexically distinctive nasal vowels, nasal VH and a consonant-tensing process. The problems with this analysis are:

- Consonant tensing (realised mainly by aspiration) is triggered by nasal vowels
- Word-initial vowels are not affected by nasal VH

I will argue for the second analysis. The set of lax consonants which resist tensing, /ɓ̥,ɓ,ɣ,$ɣ^w$,l,m,n,n^j,ŋ,$ŋ^w$,w,j/ (= the shaded block in (1) above) cannot be expected to change under the influence of a nasal vowel because they already have the harmonic property (in GP terms, an L element). The remaining problems, I will argue, by taking prosodic properties of CI and the realisation of L in other languages (e.g. Bantu languages) into account.